

Notice of Allowability

Application No.

09/734,953

Examiner

Jeffery A. Brier

Applicant(s)

SCHENA ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the response filed on 2/13/2006.
2. ☒ The allowed claim(s) is/are 39,40,42-44,49,50,52-54 and 61-78.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date 12/08/2003.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
- ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
- ☒ Examiner's Amendment/Comment
- ☒ Examiner's Statement of Reasons for Allowance
- ☐ Other _____

Drawings

1. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the proposed drawing filed on 10/06/2003 has been approved, see the 12/08/2003 office action. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance. The 11 sheets of drawings filed on 03/26/01 are acceptable and the proposed drawing sheet filed on 10/06/03 has been approved. Thus, corrected drawings are necessary.

EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

3. Authorization for this examiner's amendment was given by David Ritchie on 4/7/2006. On 3/23/2006, 3/27/2006, 3/28/2006, 4/4/2006, 4/6/2006, and 4/7/2006 this examiner and David Ritchie discussed the claims leading to the following examiner's amendment which was made to place the claims into better form.

The application has been amended as follows:

Replace the previous listing of claims with the following set of claims.

Claims 1-38 (Cancelled).

Claim 41 (Cancelled).

Claims 45-48 (Cancelled).

Claim 51 (Cancelled).

Claims 55-60 (Cancelled).

Claim 79 (Cancelled).

42. (Currently Amended) A device, comprising:

at least one sensor configured to detect one of a motion and a position of a manipulandum, a location of a cursor displayed by a host computer in communication with the device being responsive to the said manipulation of the said manipulandum;

at least one actuator operative to output a force feedback sensation; and

a force functionality button provided on the ~~said force feedback interface~~ device and manipulatable by a said user, said force functionality button configured to toggle ~~the~~ an output of the ~~force feedback sensation output by said~~ actuator when the said cursor encounters a designated graphical object or region upon a graphical display of the said host computer, the said toggling based on the said manipulation of said force functionality button by the said user, wherein said force feedback sensation is applied by the said actuator when or after said force functionality button is depressed by the said user, said force feedback sensation being associated with the said cursor crossing

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a border of a click surface, said force feedback sensation being a resistive spring force resisting motion of the said cursor into the said click surface.

39. (Currently Amended) The device of claim 42, further comprising:
an indexing button provided on the device ~~said force feedback interface~~
~~peripheral~~, said indexing button enabling an indexing mode.

40. (Currently Amended) The device of claim 42, wherein said at least
one actuator is configured to be controlled by a local processor in response to signals
received from the said host computer.

43. (Currently Amended) The device of claim 42, wherein the said click
surface is configured to be selected by the said cursor when the said cursor moves a
predetermined threshold distance into the said click surface.

44. (Currently Amended) The device of claim 42, wherein the said spring
force enables an isometric control mode~~[[,]]~~ wherein an amount of penetration of the
said manipulandum against the spring force is configured to control controlling a speed
of scrolling of a document displayed by the said host computer.

61. (Currently Amended) The device of claim 42, said force functionality button being a first button that can function as a first force functionality button providing a first force functionality mode, the device further comprising:

a second button on said device ~~force feedback interface peripheral~~ that can function as a second force functionality button, said second force functionality button manipulatable by the said user, wherein the device is configured so that manipulation of said second force functionality button causes a second force functionality mode of the device ~~said force feedback interface device~~ to be active, the said second force functionality mode being different from the said first force functionality mode.

62. (Currently Amended) The device of claim 61, wherein said second force functionality button toggles a pressure scrolling mode, a spring force being output in the said pressure scrolling mode on the said manipulandum opposing the movement of the said cursor through a border of the click surface, a rate of scrolling of an object being adapted to be controlled by an amount of penetration of the said manipulandum against the said spring force.

52. (Currently Amended) A method, comprising:
providing a force feedback interface peripheral including at least one sensor and at least one actuator, the said actuator operative to output forces to a user of the said force feedback interface peripheral;

providing a button on the said force feedback interface peripheral that can function as a force functionality button, the said force functionality button manipulatable by the said user;

enabling a cursor to be controlled on a graphical display of a host computer, a the displayed location of the said cursor being responsive to manipulation of a portion of the said force feedback interface peripheral; and

enabling the said force functionality button to toggle the application of a force feedback sensation by the at least one said actuator when the said cursor encounters a designated graphical object or region upon the graphical display of the said host computer, the said toggling responsive to ~~based on~~ said manipulation of the said force functionality button, the said force feedback sensation being associated with the said cursor crossing a border of a click surface~~[[,]]~~ ~~said force feedback sensation and~~ being a resistive spring force resisting motion of the said cursor into the said click surface.

53. (Currently Amended) The method of claim 52, further comprising:
selecting the click surface based on movement of the cursor a predetermined threshold distance into the click surface.

54. (Currently Amended) The method of claim 52, further comprising:
enabling an isometric control mode, an amount of penetration of the manipulandum against the spring force controlling a speed of scrolling of a document displayed by the host computer.

49. (Currently Amended) The method of claim 52, further comprising:
providing an indexing button on the said force feedback interface peripheral, the
said indexing button enabling an indexing mode.

50. (Currently Amended) The method of claim 52, wherein the said
actuator is configured to be controlled by a local processor in response to signals
received from the said host computer.

64. (Currently Amended) The method of claim 52, the said force
functionality button being a first force functionality button, and the method further
comprising:
providing a second button on the said force feedback interface peripheral that
can function as a second force functionality button, the said second force functionality
button manipulatable by the said user, wherein manipulation of the said second force
functionality button by the said user is configured to cause causes a second force
functionality mode to be active, the said second force functionality mode being different
from the said first force functionality mode.

65. (Currently Amended) The method of claim 64, wherein the said
second force functionality button being is configured enabled to toggle a pressure
scrolling mode, wherein a spring force is output in the said pressure scrolling mode on
the said portion of the said force feedback interface peripheral opposing the movement

of the said cursor through a border of a designated graphical object or region, a rate of scrolling of an object being controlled by an amount of penetration of the said portion of the said force feedback interface peripheral against the said spring force.

63. (Currently Amended)

A device, comprising:

at least one sensor that detects a motion or position of a manipulandum coupled to the said device, a location of a cursor displayed by a host computer in communication with the device being responsive to said manipulation of the said manipulandum;

at least one actuator operative to output a force feedback sensation;

an indexing button provided on the said device, said indexing button enabling an indexing mode; and

a force functionality button provided on the said device and manipulatable by a said user, said force functionality button configured to toggle toggles the output of the force feedback sensation output by ~~said actuator~~ when the said cursor encounters a designated graphical object or region upon a graphical display of the said host computer, said toggling responsive to ~~based on~~ said manipulation of said force functionality button.

66. (Currently Amended)

A method, comprising:

providing a force feedback interface peripheral including at least one sensor and at least one actuator, the said actuator operative to output forces to a user of the said force feedback interface peripheral;

providing a button on the said force feedback interface peripheral that can function as a force functionality button, the said force functionality button being manipulatable;

providing an indexing button on the said force feedback interface peripheral, the said indexing button configured to enable ~~enabling~~ an indexing mode when depressed by the said user;

enabling a cursor to be controlled on a host computer, a ~~the~~ displayed location of the said cursor being responsive to manipulation of a portion of the ~~[[a]]~~ force feedback interface peripheral; and

enabling the said force functionality button to toggle the application of a force feedback sensation by the said actuator when the said cursor encounters a designated graphical object or region upon the graphical display of the said host computer~~[[:]]~~, the said toggling responsive to the ~~based on~~ said manipulation of the said force functionality button by the said user.

67. (Currently Amended) A device, comprising:

a sensor configured to detect a movement of the sensor and to output a position signal, the position signal operative to update data values associated with a location of a cursor displayed on a graphical interface;

an actuator configured to output haptic feedback based on the location of the cursor displayed on the graphical interface; and

a button ~~coupled to said actuator, the button~~ configured to selectively modify the haptic feedback output by said actuator when the data values associated with the location of the cursor are associated with a graphical object displayed on the graphical interface, the haptic feedback being representative of a resistive spring force opposing a movement of the ~~said~~ cursor displayed on the graphical interface.

68. (Currently Amended) The device of claim 67, further comprising:
an indexing button coupled to said ~~the~~ actuator, said indexing button configured to enable an indexing mode.

69. (Currently Amended) The device of claim 67, wherein said ~~the~~ actuator is configured to be controlled by a local processor, the local processor configured to receive a control signal from a host computer coupled to the graphical interface.

70. (Previously Presented) The device of claim 67, wherein the position signal is operative to scroll a document displayed on the graphical interface, a speed at which the document is scrolled being proportional to a movement of the cursor into a window on the graphical interface.

71. (Currently Amended) The device of claim 67, said the button being a first button, the haptic feedback being a first haptic-feedback mode, and the device further comprising:

a second button configured to actuate a second haptic-feedback mode.

72. (Currently Amended) A method, comprising:

outputting a position signal, the position signal being based on a movement of a haptic-feedback device;

updating data values associated with a location of a cursor displayed on a graphical interface, the updating being based on the position signal;

~~outputting haptic feedback at the haptic-feedback device based on a feedback signal, the feedback signal being based on the data values associated with the location of the cursor corresponding to data values associated with one of a graphical object and graphical region displayed on the graphical interface;~~

~~selecting a first type of haptic feedback to be provided to the haptic feedback device using a button on the haptic-feedback device when the button is in a first position;~~

~~selecting a second type of haptic feedback when the button is in a second position different from the first position; and~~

~~modifying the type of haptic feedback output based on the selected type of haptic feedback~~

using a first button associated with the haptic-feedback device to select between a first type of haptic feedback to be provided to the haptic-feedback device when the first button is in a first position and a second type of haptic feedback when the first button is in a second position different from the first position; and
outputting a first haptic feedback at the haptic-feedback device based on (1) whether the first button is in the first position or the second position, (2) a feedback signal, and (3) data values associated with the location of the cursor, the data values corresponding to data values associated with one of a graphical object and a graphical region displayed on the graphical interface.

73. (Currently Amended) The method of claim 72, wherein the position signal is operative to scroll a document displayed on the graphical interface, a speed at which the document is scrolled configured to be being proportional to a penetration of the cursor into a window on the graphical interface.

74. (Currently Amended) The method of claim 72, ~~the haptic-feedback being a first haptic feedback, the button being a first button, the method further comprising:~~

outputting a second haptic-feedback based on the feedback signal;
modifying the ~~output of the~~ second haptic-feedback using a second button coupled to the haptic-feedback device.

75. (Currently Amended) The method of claim 74, wherein said the outputting the second haptic-feedback includes outputting a haptic feedback with a different force functionality than the first haptic feedback.

76. (Currently Amended) A device, comprising:
a sensor configured to detect a movement of the sensor and to output a position signal, the position signal operative to update data values associated with a location of a cursor displayed on a graphical interface;
an actuator configured to output haptic feedback based on the location of the cursor displayed on the graphical interface; and
a button ~~coupled to said actuator, the button~~ configured to selectively modify the type of haptic feedback output by said actuator when the data values associated with the location of the cursor are associated with one of a graphical object and graphical region displayed on the graphical interface, the haptic feedback corresponding to a ~~being a~~ first haptic-feedback mode when said the button is in a first position and corresponding to a ~~being a~~ second haptic-feedback mode when the button is in a second position.

77. (Previously presented) The device of claim 76, wherein the first haptic-feedback is representative of a resistive spring force and the second haptic-feedback has a different force functionality than the first haptic feedback.

78. (Previously presented) The device of claim 77, wherein the position signal is operative to scroll a document displayed on the graphical interface, a speed at which the document is scrolled being proportional to a penetration of the cursor into a window on the graphical interface.

REASONS FOR ALLOWANCE

4. The following is an examiner's statement of reasons for allowance:

Claims 39, 40, 42-44, 49, 50, 52-54, 61, 62, 64, and 65:

The prior art of record does not teach or suggest when or after a force functionality button is depressed by the user and when the cursor crosses a border of a click surface applying by the actuator a spring force resisting motion of the cursor into said click surface. The closest prior art is Salcudean which at column 9 lines 44-48 describes transferring the tactile sense of pressing a button when the pointer or cursor presses the softbutton, but does not teach the force functionality button and does not teach applying a spring force resisting motion of the cursor as the cursor crosses the border of the click surface into the click surface.

Claims 63 and 66:

The prior art of record does not teach or suggest an indexing button on the force feedback interface device enabling an indexing mode, described in applicant's specification at page 12 line 33 to page 13 line 12, and a force functionality button which toggles the application of force feedback sensation by the actuator.

Claims 67-71:

The prior art of record does not teach or suggest a button configured to modify the haptic feedback output when the location of the displayed cursor and displayed graphical object are associated with each other and having the haptic feedback represent a resistive spring force opposing a movement of the cursor displayed on the graphical interface.

Claims 72-75:

The prior art of record does not teach or suggest outputting a first haptic feedback at the haptic-feedback device based on (1) whether the first button is in the first position or the second position, (2) a feedback signal, and (3) data values associated with the location of the cursor, the data values corresponding to data values associated with one of a graphical object and a graphical region displayed on the graphical interface.

Claims 76-78:

The prior art of record does not teach or suggest the haptic feedback corresponding to a first haptic-feedback mode when the button is in a first position and corresponding to a second haptic-feedback when the button is in a second position.

Claims 39, 40, 42-44, 49, 50, 52-54, 61-78:

Additionally applicant's specification at page 14 lines 2-6 teaches a force toggle may be force on and force off and states: "For example, when the mode is not active, the cursor can be moved normally through the border or edge of a window, with no force sensations associated with the movement over the window. However, when the

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force mode is active (such as by pressing or holding button 15a), a spring force will be output on mouse 12 opposing the movement of the cursor through the window border.”.

A search for a force on/off switch or button did not find any prior art teaching or suggestion and in view of the Micorsort Sidewindier FF product review Prior Art force feedback wheels did not have a force on/off switch. See the fourth paragraph of:

http://72.14.203.104/search?q=cache:rWTSD4KJWvEJ:www.f1gamers.com/f1/apanel/view_articles.php%3Fid%3D4+%22force+feedback%22+force+%22on/off+button%22&hl=en&gl=us&ct=clnk&cd=28

“The SideWinder has something else the other wheels don't: a force-feedback on/off button right in the center of the hub. It's important to remember, however, that going without force feedback in a force-feedback-supported game results in one very loose wheel, so that switch might not see a lot of use.”

and at:

http://www.f1gamers.com/f1/apanel/view_articles.php?id=4

“The SideWinder has something else the other wheels don't: a force-feedback on/off button right in the center of the hub. It's important to remember, however, that going without force feedback in a force-feedback-supported game results in one very loose wheel, so that switch might not see a lot of use.”

The article has a copyright date of 1999 and the wayback machine only gives a date of Aug 26, 2002 for the above web page at:

http://web.archive.org/web/*/http://www.f1gamers.com/f1/apanel/view_articles.php?id=4

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

5. The claims have been renumbered as follows.

Old claim no.	New claim no.	Old claim no.	New claim no.
39	2	65	14
40	3	66	16
42	1	67	17
43	4	68	18
44	5	69	19
49	11	70	20
50	12	71	21
52	8	72	22
53	9	73	23
54	10	74	24
61	6	75	25
62	7	76	26
63	15	77	27
64	13	78	28

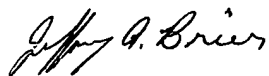
Information Disclosure Statement

6. The information disclosure statement filed 2/13/2006 has been considered. The US Patent Documents and Foreign Patent Documents have been lined through because they were considered in the 7/29/2004 information disclosure statement. A copy of the 7/29/2004 information disclosure statement was mailed to applicant with the 9/7/2005 office action.

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffery A Brier whose telephone number is (571) 272-7656. The examiner can normally be reached on M-F from 7:00 to 3:30. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi, can be reached at (571) 272-7664. The fax phone Number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jeffery A Brier
Primary Examiner
Art Unit 2672